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THE PRINCIPAL CANADIAN TELECOMMUNICATIONS CARRIERS:

EXPENDITURES ON TELECOMMUNICATIONS EQUIPMENT

1973 - 1982



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INTRODUCTION

The Canadian telecommunications industry is a major part of Canada's industrial infrastructure. Almost entirely domestically owned and controlled, the industry employs some 150,000 people. Its reputation for excellence, advanced technology and quality of service is among the best in the world.

Telecommunications carriers are the backbone of the Canadian telecommunications industry. They provide voice and data services needed for local and long distance communications. The switching, transmission and receiving equipment they use to provide these services are acquired from another important segment of the Canadian telecommunications industry, the telecommunications equipment manufacturers.

"The Principal Canadian Telecommunications Carriers: Expenditures on Telecommunications Equipment" is a publication of the Department of Communications in association with the Canadian Telecommunications Carriers Association. It reviews carriers' expenditures on telecommunications equipment for the years 1973 to 1977, together with a forecast of corresponding annual outlays from 1978 to 1982.

The publication is intended to promote a better understanding of the scope and nature of the Canadian carriers' ongoing requirement for and investment in high technology equipment in this country. It provides a revision with more detail and an historical extension of data published in the Department of Communications' 1974 Working Paper entitled "Canadian Telecommunications Carriers and Their Suppliers".

The forecast of the main aggregates of data through 1982 sheds light on the expansion and modernization plans of Canada's carriers over the next few years. It, together with the update of the corresponding figures for recent years, provides an information base for the formulation of appropriate industrial strategies by providing an appreciation of the carriers' present and future needs.

The Canadian Telecommunications Carriers Association collected the basic information for this publication; the Department of Communications processed the returns and tabulated the data in consultation with the Association. Department officials and telecommunications industry representatives collaborated on the commentary.

The survey to obtain basic data for this publication took place during the summer of 1978. The 19 corporate members of the Canadian Telecommunications Carriers Association were canvassed to supply information on their 1973-1977 actual expenditures, current 1978 outlays and anticipated 1979-1982 spending for central office (switching and transmission) equipment, outside plant (distribution) and station apparatus (terminal equipment).

The survey focused on amounts spent for telecommunications equipment. Outlays for land, buildings and vehicles were not included. As a result, the publication data may differ from related data appearing in the financial statements of telecommunications carriers which generally include expenditures for real property and transportation equipment.

Expenditures reported in the publication also include, where applicable, an element for the value of labour necessary to bring certain equipment such as station connections into operation. For all members of the Association, this amount is about 25 percent of total spending for equipment. All expenditures are expressed in current dollars.

Based on this survey, the principal Canadian telecommunications carriers expect to spend some \$16.8 billion for the acquisition and installation of new telecommunications equipment in the decade ending in 1982. Of this, some \$6.9 billion was spent during 1973-1977. The remainder represents the carriers' 1978 view of the corresponding amount to be spent in 1978-1982.

Telecommunications equipment expenditures by carriers headquartered in Ontario and Quebec will rise from 55.8 percent of the total for 1973-1977 to 56.9 percent for 1978-1982. The corresponding share of expenditures for carriers headquartered in the Western provinces will increase from 35.6 percent for 1973-1977 to 37.1 percent for 1978-1982. Expenditures by carriers headquartered in the Atlantic provinces will drop from 8.6 percent for 1973-1977 to 6.0 percent for 1978-1982.

Carriers with gross plant valued at less than \$250 million accounted for 5.2 percent of the total 1973-1977 telecommunications equipment expenditure; their share of corresponding 1978-1982 outlays are expected to drop to 4.6 percent. Those with gross plant valued between \$250 million and \$500 million will experience a decrease in their share of expenditures from 12.7 percent for 1973-1977 to 11.1 percent for 1978-1982. Carriers with gross plant valued at more than \$500 million will increase their share of the same expenditures from 82.1 percent for 1973-1977 to 84.3 percent for 1978-1982.

Generally, the proportion of expenditure for central office equipment will decrease over the decade. This decline will be compensated for by a roughly equivalent gain in the relative importance of spending for station apparatus. The importance of spending for outside plant will remain virtually unchanged from the first to the second half of the period. These findings are generally true both for the regional and size-of-firm presentations.

The decline in the share of spending on central office equipment is, however, less evident in Western Canada. The accelerating pace of industrial development and substantial increase in population are combining to generate above-average rates of increase for outlays for central office equipment in the West. Also the decline in expenditure on switching is less evident for carriers with gross plant valued at less than \$250 million. Data for these carriers may be distorted, however, by the inclusion of data for Teleglobe and Telesat which do not serve the public directly.

In absolute dollar terms, central office equipment will continue to account for most of the carriers' equipment expenditure during 1978-1982. However, with the push for electronic switching nearing completion, spending in this area is returning to a historically lower level. Spending for station apparatus, on the other hand, is increasing. The carriers' interest in aggressive marketing of all types of terminal equipment and rapid increases in labour connection charges account in large part for growth in this category.

For the 1978 survey, as shown in the accompanying tables, expenditures are presented by region and value of gross plant in 1977. The aggregates indicate geographical trends and trends by size-of-firm, while preserving the confidentiality of individual respondents.

Under the heading "central office equipment" expenditures are shown for manual, step-by-step, crossbar and electronic switching. Spending for radio transmission and other transmission equipment (i.e. voice frequency, carrier terminal and concentrating equipment) is also shown.

Station apparatus, or terminal equipment, is broken down into teletypewriters (including cathode ray display units and similar devices), telephones (single and multi-key sets), mobile and radio telephones, data equipment including modems, station connections (which include miscellaneous terminal hardware and wiring, together with the capitalized cost of the labour necessary to connect the equipment to the public switching network at the customer's location) and private branch exchanges.

Outside plant expenditures are divided for the purposes of these tables into outlays for pole lines, that is, poles and associated hardware except for aerial cable or wire; aerial, underground, buried and submarine cable; aerial wire (single strand open wire); and underground conduit for use with underground cable.

Preliminary data for 1978 and forecasts for 1979 to 1982 are presented as subtotals by class of investment, as certain carriers could not provide breakdowns by type of equipment. Percentages may not add due to rounding.

Questions and suggestions for future editions are welcome by the Department. Contact:

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1973-
1977
TOTAL

1978-
1982
TOTAL

PERCENTAGE

CENTRAL OFFICE EQUIPMENT

SWITCHING: MANUAL
STEP-BY-STEP
CROSSBAR
ELECTRONIC
TRANSMISSION: RADIO
OTHER

SUBTOTAL

STATION APPARATUS

TELETYPEWRITERS
TELEPHONES
RADIO TELEPHONES
DATA
STATION CONNECTIONS
LARGE PHX

SUBTOTAL

OUTSIDE PLANT

POLE LINES
CABLE: AERIAL
UNDERGROUND
BURIED
SUBMARINE
AERIAL WIRE
UNDERGROUND CONDUIT

SUBTOTAL

1.0 1.3 .9 .4 .8
6.7 6.5 6.0 6.4 6.1
9.1 10.8 9.4 9.1 9.5
7.2 9.4 12.0 15.1 14.0
5.3 3.7 4.1 4.0 3.5
12.1 13.9 14.6 11.7 11.0

41.4 45.7 47.1 46.6 43.6 45.1 41.3 39.7 41.6 40.5 40.1 40.6

.9 .6 .9 .9 1.0
3.4 3.8 8.3 7.7 7.5 6.6
.6 1.0 1.3 1.1 1.2 1.1
.6 .5 1.1 1.0 1.1 .9
12.8 12.2 11.4 12.0 13.2 12.3
4.2 4.5 3.9 3.6 3.4 3.9

22.4 22.6 27.7 26.4 27.3 25.7 29.1 29.6 29.4 30.9 30.5 29.9

1.7 1.5 1.4 1.5 2.5 1.8
9.2 8.5 7.5 8.0 8.7 8.3
6.3 6.5 5.3 6.2 5.2 5.8
9.8 8.6 6.6 7.0 8.2 7.8
2.4 .6 .1 .0 .1 .5
.4 .3 .2 .2 .4 .3
6.2 5.7 4.2 4.1 4.1 4.7

36.2 31.7 25.2 27.0 29.2 29.1 29.6 30.8 29.0 28.6 29.4 29.4

TABLE 2. PLANT EQUIPMENT EXPENDITURES - ATLANTIC CANADA (NEWFOUNDLAND), NOVA SCOTIA, NEW BRUNSWICK AND PRINCE EDWARD ISLAND).

NUMBER OF CARRIERS: 4		1973	1974	1975	1976	1977	1978*	1979**	1980**	1981**	1982**
MILLIONS OF DOLLARS											
CENTRAL OFFICE EQUIPMENT											

SWITCHING: MANUAL		7.0	1.2	1.8	1.1	1.0					
STEP-BY-STEP		11.9	10.0	10.0	9.6	7.9					
CROSSBAR		4.2	15.9	17.2	17.6	12.6					
ELECTRONIC		2.2	11.1	15.3	21.2	8.8					
TRANSMISSION: RADIO		4.1	5.0	4.8	7.1	10.9					
OTHER		8.1	15.3	15.2	16.7	16.4					
		-----	-----	-----	-----	-----					
SUBTOTAL		51.4	60.5	64.4	73.3	57.7	48.0	39.1	51.2	57.6	41.8
STATION APPARATUS											

TELETYPEWRITERS		.5	.5	.5	.3	.4					
TELEPHONES		8.2	10.0	8.1	8.7	9.1					
RADIO TELEPHONES		.8	1.1	1.0	.9	.7					
DATA		.4	.3	.5	.3	.6					
STATION CONNECTIONS		7.9	10.3	11.3	12.1	11.1					
LARGE PRX		1.8	1.7	2.6	3.2	2.1					
		-----	-----	-----	-----	-----					
SUBTOTAL		19.4	23.9	24.0	25.5	23.9	28.3	33.6	33.9	34.0	34.5
OUTSIDE PLANT											

POLF LINES		3.9	4.8	4.9	5.7	6.7					
CABLE: AERIAL		16.6	21.6	21.0	20.6	22.1					
UNDERGROUND		2.2	2.4	2.8	3.6	2.8					
BURIED		6.1	6.6	4.4	5.5	4.1					
SUBMARINE		.1	.1	.3	.1	.1					
AERIAL WIRE		.9	1.0	.9	1.2	1.0					
UNDERGROUND CONDUIT		2.0	3.2	2.8	.8	2.6					
		-----	-----	-----	-----	-----					
SUBTOTAL		31.7	39.8	37.1	37.4	39.2	38.5	39.0	37.4	34.1	32.7
TOTAL											
		82.5	124.2	125.5	136.2	120.7	114.8	111.6	122.5	125.7	109.0
* OUTLOOK											
** FORECAST											

CENTRAL OFFICE EQUIPMENT

SWITCHING: MANUAL
STEP-BY-STEP
CROSSBAR
ELECTRONIC
TRANSMISSION: RADIO
OTHER

SURTOTAL

STATION APPARATUS

TELETYPEWRITERS
TELEPHONES
RADIO TELEPHONES
DATA
STATION CONNECTIONS
LARGE PBX

SUBTOTAL

OUTSIDE PLANT

POLE LINES
CAHLE: AERIAL
UNDERGROUND
BURIED
SUBMARINE
AERIAL WIRE
UNDERGROUND CONDUIT

SURTOTAL

1973-1977 TOTAL 1977 1976 1975 1974 1973-1977 TOTAL 1978-1982 TOTAL

PERCENTAGE

9 8.5 11.2 2.7 5.0 9.8 1.0 9.6 12.8 8.9 4.0 12.4 1.4 7.9 13.7 12.2 3.8 12.2 53.8 47.8 19.8 19.2 19.2 3.9 17.4 1.9 5.3 .1 1.1 2.4 8.5 7.1 13.0 15.6 5.2 12.2 .9 6.5 10.4 7.3 9.0 13.6 1.0 7.9 12.3 10.0 5.4 12.2 48.7 41.8 35.0 41.8 45.8 38.5 40.7

.6 9.9 .4 9.5 2.2 .4 8.0 .9 .2 8.3 1.4 .4 6.5 .4 9.0 2.1 19.2 19.2 19.2 19.8 19.8 3.9 17.4 1.9 5.3 .1 1.1 2.4 8.5 7.1 13.0 15.6 5.2 12.2 .3 7.5 .6 .5 9.2 1.7 1.9 19.8 24.7 30.1 27.6 27.0 31.7 28.1

4.7 20.2 2.7 7.3 .1 1.1 2.4 8.5 7.1 13.0 15.6 5.2 12.2 5.6 18.3 2.3 4.5 .1 .8 1.9 19.8 19.8 30.1 27.6 27.0 31.7 28.1

34.5 32.1 29.5 27.4 32.5 31.4 33.5 34.9 30.5 27.1 30.0 31.1

TABLE 3. PLANT EQUIPMENT EXPENDITURES - QUEBEC AND ONTARIO.

NUMBER OF CARRIERS: 8		1973	1974	1975	1976	1977	1978*	1979**	1980**	1981**	1982**
		MILLIONS OF DOLLARS									
CENTRAL OFFICE EQUIPMENT											
SWITCHING: MANUAL		6.2	12.2	5.2	2.4	3.0					
STEP-BY-STEP		22.0	23.8	28.8	31.9	38.3					
CROSSBAR		52.1	85.7	47.0	99.7	103.2					
ELECTRONIC		48.1	75.1	90.4	113.9	93.3					
TRANSMISSION: RADIO		23.9	22.5	26.6	26.9	21.5					
OTHER		68.8	115.9	142.9	109.1	106.6					
SUBTOTAL		221.0	335.2	341.0	383.9	365.9	387.5	418.2	441.3	423.2	462.5
STATION APPARATUS											
TELETYPEWRITERS		4.0	3.6	18.2	12.0	12.3					
TELEPHONES		2.3	2.4	71.4	67.6	74.5					
RADIO TELEPHONES		.5	.8	8.1	7.4	6.5					
DATA		3.8	3.2	11.0	9.7	11.6					
STATION CONNECTIONS		78.8	82.6	94.5	102.1	132.3					
LARGE PRX		25.8	42.6	36.8	40.5	40.6					
SUBTOTAL		115.2	135.2	240.0	239.5	277.7	308.3	341.7	355.2	361.1	378.4
OUTSIDE PLANT											
POLE LINES		7.8	9.9	11.3	13.8	21.8					
CABLE: AERIAL		43.8	61.2	63.9	77.1	96.6					
UNDERGROUND		36.0	51.9	40.6	54.9	51.3					
BURIED		46.0	60.1	44.8	55.4	69.8					
SUBMARINE		20.7	7.6	.6	.4	.8					
AERIAL WIRE		2.0	1.9	1.8	1.8	1.9					
UNDERGROUND CONDUIT		37.0	43.6	32.4	40.9	45.3					
SUBTOTAL		193.2	236.2	195.4	244.3	287.4	326.9	385.9	359.8	340.2	372.8
TOTAL		529.5	706.5	816.3	867.7	931.1	1022.7	1145.7	1156.2	1124.5	1213.7

* OUTLOOK

** FORECAST

1973-1977 TOTAL 1978 1979 1980 1981 1982 1978-1982 TOTAL

PERCENTAGE

CENTRAL OFFICE EQUIPMENT

SWITCHING: MANUAL
STEP-BY-STEP
CROSSBAR
ELECTRONIC
TRANSMISSION: RADIO
OTHER

SUBTOTAL

STATION APPARATUS

TELETYPEWRITERS
TELEPHONES
RADIO TELEPHONES
DATA
STATION CONNECTIONS
LARGE PHX

SUBTOTAL

OUTSIDE PLANT

POLE LINES
CARLF: AERIAL
UNDERGROUND
BURIED
SUBMARINE
AERIAL WIPE
UNDERGROUND CONDUIT

SUBTOTAL

TABLE 4. PLANT EQUIPMENT EXPENDITURES - WESTERN CANADA (MANITOBA, SASKATCHEWAN, ALBERTA AND BRITISH COLUMBIA).

NUMBER OF CARRIERS: 6	MILLIONS OF DOLLARS									
	1973	1974	1975	1976	1977	1978*	1979**	1980**	1981**	1982**
CENTRAL OFFICE EQUIPMENT										
SWITCHING: MANUAL	28.9	3.1	7.1	3.0	3.0					
STEP-BY-STEP	28.9	44.7	50.7	60.3	46.8					
CROSSBAR	17.3	31.8	35.8	26.7	44.5					
ELECTRONIC	11.6	30.3	73.6	104.4	138.7					
TRANSMISSION: RADIO	17.5	18.4	29.2	29.4	27.6					
OTHER	27.0	40.9	59.9	60.2	65.5					
SUBTOTAL	104.3	169.1	256.2	284.1	326.2	304.2	325.6	354.2	339.4	342.9
STATION APPARATUS										
TELETYPEWRITERS										
TELEPHONES	3.5	2.8	3.7	2.6	2.8					
RADIO TELEPHONES	18.5	35.2	44.7	46.2	45.9					
DATA	4.3	10.8	10.5	9.4	13.0					
STATION CONNECTIONS	.7	2.2	5.0	6.0	6.9					
LARGE PBX	23.7	58.1	64.7	75.8	83.0					
	8.2	11.7	19.3	13.8	16.4					
SUBTOTAL	58.9	120.7	148.0	153.9	168.1	164.1	208.2	210.3	231.1	232.0
OUTSIDE PLANT										
POLE LINES										
CABLE: AERIAL	3.4	4.1	4.5	4.9	14.3					
UNDERGROUND	18.4	22.0	26.3	28.9	30.6					
BURIED	16.4	26.5	35.2	39.4	35.3					
SUBMARINE	32.4	39.3	49.0	50.2	67.8					
AFRIAL WIRE	.3	.2	.2	.1	.3					
UNDERGROUND CONDUIT	14.7	23.5	27.1	23.4	22.5					
SUBTOTAL	86.6	116.2	143.1	147.6	175.1	163.6	182.3	192.2	204.7	216.2
TOTAL	249.8	406.0	547.3	585.6	669.3	651.9	716.0	756.6	775.1	791.2
* OUTLOOK										
** FORECAST										

CENTRAL OFFICE EQUIPMENT

SWITCHING: MANUAL
STFP-RV-STFP
CROSSRAK
ELECTRONIC
TRANSMISSION: RADIO
OTHER

SURTOTAL

STATION APPARATUS

TELETYPEWRITERS
TELEPHONES
RADIO TELEPHONES
DATA
STATION CONNECTIONS
LARGE PBX

SURTOTAL

OUTSIDE PLANT

POLE LINES
CABLE: AERIAL
UNDERGROUND
BURIED
SUBMARINE
AERIAL WIRE
UNDERGROUND CONDUIT

SURTOTAL

1973-
1977
TOTAL

PERCENTAGE

1978-
1982
TOTAL

1973 1974 1975 1976 1977 1978 1979 1980 1981 1982

11.6 11.0 9.3 10.3 7.0 9.4
6.9 7.8 6.5 4.6 6.7 6.4
4.6 7.5 13.4 17.8 20.7 14.6
7.0 4.5 5.3 5.0 4.1 5.0
10.8 10.1 10.9 10.3 9.8 10.3

41.7 41.6 46.8 48.5 48.7 46.4 45.5 46.8 43.8 43.3 45.1

1.4 1.7 8.2 7.9 6.9 7.8
7.4 2.7 1.9 1.6 1.9 2.0
1.7 2.7 1.9 1.0 1.0 1.8
3 .5 .9 1.0 1.0 1.8
9.5 14.3 11.8 12.9 12.4 12.4
3.3 2.9 3.5 2.4 2.4 2.8

23.6 29.7 27.0 26.3 25.1 26.4 29.1 27.8 29.8 29.3 28.9

1.4 1.0 4.8 4.9 2.1 1.3
7.5 5.4 4.8 6.7 5.3 5.1
6.6 6.5 6.4 8.6 10.1 9.7
13.0 9.7 9.0 10.1 10.1 9.7
.1 .1 .0 .0 .0 .0
.3 .2 .1 .1 .7 .3
5.9 5.8 5.0 4.0 3.4 4.5

34.7 28.6 26.1 25.2 26.2 27.2 25.1 25.4 26.4 27.3 26.0

TABLE 5. PLANT EQUIPMENT EXPENDITURES - CARRIERS WITH GROSS PLANT VALUED AT LESS THAN \$250 MILLION IN 1977.

NUMBER OF CARRIERS:	8	1973	1974	1975	1976	1977	1978*	1979**	1980**	1981**	1982**
MILLIONS OF DOLLARS											
CENTRAL OFFICE EQUIPMENT											

SWITCHING: MANUAL	.3	.5	.6	.5	.5	7.6					
STEP-BY-STEP	4.5	6.5	6.2	6.9	10.1						
CROSSBAR	5.5	7.7	5.2	4.6	12.4						
ELECTRONIC	2.0	7.2	7.8	12.6	8.9						
TRANSMISSION: RADIO	3.5	5.1	4.7	5.2	16.5						
OTHER	8.0	12.4	10.4	11.0							
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SUBTOTAL	23.8	39.3	34.9	40.9	55.9	62.7	55.9	41.3	51.3	53.5	
STATION APPARATUS											

TELETYPEWRITERS	1.4	2.2	2.7	2.1	2.3						
TELEPHONES	2.1	2.7	2.2	2.4	4.5						
RADIO TELEPHONES	.3	.3	.3	.2	.8						
DATA	2.5	2.2	2.1	1.7	2.9						
STATION CONNECTIONS	3.0	4.5	4.6	5.0	7.1						
LARGE PHX	.7	1.0	1.6	1.2	1.4						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SUBTOTAL	10.1	12.8	13.5	12.6	19.0	21.2	24.4	20.8	21.2	23.3	
OUTSIDE PLANT											

POLE LINES	1.1	1.5	1.4	1.2	2.2						
CABLE: AERIAL	4.6	5.2	5.6	6.7	8.9						
UNDERGROUND	.7	1.1	1.9	2.5	1.5						
HURIED	1.2	1.7	1.8	2.5	4.0						
SUBMARINE	20.3	7.0	.2	.2	.0						
AERIAL WIRE	.1	.2	.2	.1	.2						
UNDERGROUND CONDUIT	1.0	.9	1.5	1.6	2.4						
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SUBTOTAL	29.1	17.6	12.5	14.7	19.2	22.8	17.6	11.3	11.4	13.8	
TOTAL											
	62.9	69.7	60.9	68.2	94.1	106.7	97.9	73.4	83.9	90.6	
* OUTLOOK		** FORECAST									

CENTRAL OFFICE EQUIPMENT

SWITCHING: MANUAL
STEP-BY-STEP
CROSSBAR
ELECTRONIC
TRANSMISSION: RADIO
OTHER

SUBTOTAL

STATION APPARATUS

TELETYPEWRITERS
TELEPHONES
RADIO TELEPHONES
DATA
STATION CONNECTIONS
LARGE PBX

SUBTOTAL

OUTSIDE PLANT

POLY LINES
CABLE: AERIAL
UNDERGROUND
BURIED
SUBMARINE
AERIAL WIRE
UNDERGROUND CONDUIT

SUBTOTAL

1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1978-1982 TOTAL

PERCENTAGE

5 7 1.0 10.2 8.1 54.7 57.2 56.3 61.2 59.1 58.5
7.1 9.3 10.2 10.2 8.1 54.7 57.2 56.3 61.2 59.1 58.5
8.8 11.0 8.5 6.8 10.7 9.3 9.3 9.3 9.3 9.3 9.3
3.2 10.3 12.9 18.4 13.2 11.4 11.4 11.4 11.4 11.4 11.4
5.6 7.3 7.7 7.7 9.4 7.7 7.7 7.7 7.7 7.7 7.7
12.7 17.7 17.0 16.1 17.5 16.3 16.3 16.3 16.3 16.3 16.3

37.8 56.3 57.3 59.9 59.4 54.7 57.2 56.3 61.2 59.1 58.5

2.3 3.2 4.4 3.0 2.4 3.0 3.0 3.0 3.0 3.0 3.0
3.4 3.9 3.6 3.5 4.8 3.9 3.9 3.9 3.9 3.9 3.9
4.0 3.1 3.4 2.5 3.1 3.2 3.2 3.2 3.2 3.2 3.2
4.8 6.4 7.5 7.3 7.5 6.8 6.8 6.8 6.8 6.8 6.8
1.2 1.4 2.7 1.8 1.5 1.7 1.7 1.7 1.7 1.7 1.7

16.1 18.4 22.1 18.5 20.2 19.1 24.9 28.4 25.3 25.7 24.5

1.8 2.2 2.3 1.7 2.3 2.1 2.1 2.1 2.1 2.1 2.1
7.3 7.4 9.2 9.9 9.5 8.7 8.7 8.7 8.7 8.7 8.7
1.1 1.6 3.1 3.6 1.5 2.1 2.1 2.1 2.1 2.1 2.1
1.9 2.1 2.9 3.6 4.2 3.1 3.1 3.1 3.1 3.1 3.1
52.2 10.1 3.3 3.3 3.0 7.8 7.8 7.8 7.8 7.8 7.8
2.2 2.2 3.3 3.2 3.3 3.2 3.2 3.2 3.2 3.2 3.2
1.6 1.3 2.5 2.3 2.6 2.1 2.1 2.1 2.1 2.1 2.1

46.2 25.2 20.6 21.6 20.4 26.2 18.0 15.3 13.6 15.2 17.0

TABLE 6. PLANT EQUIPMENT EXPENDITURES - CARRIERS WITH GROSS PLANT VALUED BETWEEN \$250 MILLION AND \$500 MILLION IN 1977.

NUMBER OF CARRIERS:	5	1973	1974	1975	1976	1977	1978*	1979**	1980**	1981**	1982**
CENTRAL OFFICE EQUIPMENT											

SWITCHING: MANUAL	7	1.0	1.8	1.0	1.8	1.0					
STEP-BY-STEP	6.9	10.0	11.4	12.5	10.0	17.4					
CROSSBAR	9.1	18.7	23.5	23.1	23.0	23.0					
ELFCTRONIC	7.0	18.4	33.1	29.4	9.9	24.5					
TRANSMISSION: RADIO	10.5	9.7	12.9	12.2	26.0						
OTHER	13.9	23.0	24.8								

SUBTOTAL	48.1	80.7	107.5	104.2	85.8	95.6	78.2	99.5	110.3	95.6	
STATION APPARATUS											

TELETYPEWRITERS	3.1	1.9	4.5	2.5	9						
TELEPHONES	11.6	15.8	15.9	16.0	16.2						
RADIO TELEPHONES	1.7	1.9	1.8	2.3	1.8						
DATA	1.6	1.3	2.3	2.1	2.1						
STATION CONNECTIONS	10.4	13.1	17.2	17.9	18.3						
LARGE PRX	2.0	2.3	2.3	3.7	4.3						

SUBTOTAL	30.4	36.3	44.1	44.5	43.5	53.2	61.4	63.9	68.4	63.1	
OUTSIDE PLANT											

POLE LINES	4.2	4.6	6.0	6.3	12.6						
CABLE: AERIAL	19.0	24.2	29.9	23.5	28.5						
UNDERGROUND	5.3	5.9	9.2	9.7	7.8						
BURIED	6.5	6.1	5.1	6.1	4.1						
SUBMARINE	1.1	1.1	.2	.1	.1						
AERIAL WIRE	1.7	1.6	1.7	1.6	1.7						
UNDERGROUND CONDUIT	2.8	5.4	4.9	2.5	4.8						

SUBTOTAL	39.5	48.0	57.0	49.8	59.5	52.8	61.2	63.2	64.3	68.4	
TOTAL											
	118.0	165.0	208.7	198.5	188.8	201.6	200.8	226.6	243.0	227.1	
** FORECAST											
* OUTLOOK											

1973-
1977
TOTAL

1978-
1982
TOTAL

1981

1980

1979

1978

1977

1976

1975

1974

1973

PERCENTAGE

CENTRAL OFFICE EQUIPMENT

SWITCHING: MANUAL
STEP-HY-STEP
CROSSBAR
ELECTRONIC
TRANSMISSION: RADIO
OTHER

SUBTOTAL

STATION APPARATUS

TELETYPEWRITERS
TELEPHONES
RADIO TELEPHONES
DATA
STATION CONNECTIONS
LARGE PRX

SUBTOTAL

OUTSIDE PLANT

POLE LINES
CABLE: AERIAL
UNDERGROUND
BURIED
SUBMARINE
AERIAL WIRE
UNDERGROUND CONDUIT

SUBTOTAL

6.6	6.0	6.6	9	4	5	6	48.5	47.4	38.9	43.9	45.4	42.1	43.6
5.4	11.3	11.3	11.3	11.7	9.2	5.8	45.4	47.4	38.9	43.9	45.4	42.1	43.6
7.7	11.3	11.3	11.3	11.7	9.2	5.8	45.4	47.4	38.9	43.9	45.4	42.1	43.6
6.0	11.1	15.4	15.4	14.4	12.2	10.5	45.4	47.4	38.9	43.9	45.4	42.1	43.6
4.9	5.9	6.2	6.2	6.2	5.2	6.3	45.4	47.4	38.9	43.9	45.4	42.1	43.6
11.8	14.0	11.9	11.9	13.1	13.0	12.8	45.4	47.4	38.9	43.9	45.4	42.1	43.6
40.8	44.9	51.5	51.5	52.5	45.4	48.5	45.4	47.4	38.9	43.9	45.4	42.1	43.6
2.6	1.1	2.2	2.2	1.2	5	1.5	45.4	47.4	38.9	43.9	45.4	42.1	43.6
9.8	9.6	7.6	7.6	8.1	8.6	8.6	45.4	47.4	38.9	43.9	45.4	42.1	43.6
1.4	1.1	1.9	1.9	1.2	1.0	1.1	45.4	47.4	38.9	43.9	45.4	42.1	43.6
1.3	.8	1.1	1.1	1.1	1.1	1.1	45.4	47.4	38.9	43.9	45.4	42.1	43.6
9.8	7.3	8.3	8.3	9.0	9.7	8.8	45.4	47.4	38.9	43.9	45.4	42.1	43.6
1.7	1.4	1.1	1.1	1.9	2.3	1.7	45.4	47.4	38.9	43.9	45.4	42.1	43.6
25.7	22.0	21.2	21.2	22.4	23.1	22.6	45.4	47.4	38.9	43.9	45.4	42.1	43.6
3.6	2.8	2.9	2.9	3.2	6.7	3.8	45.4	47.4	38.9	43.9	45.4	42.1	43.6
16.1	14.7	14.3	14.3	11.8	15.1	14.2	45.4	47.4	38.9	43.9	45.4	42.1	43.6
4.5	3.6	4.4	4.4	4.9	4.1	4.3	45.4	47.4	38.9	43.9	45.4	42.1	43.6
5.5	3.7	2.4	2.4	3.1	2.2	3.2	45.4	47.4	38.9	43.9	45.4	42.1	43.6
.1	.1	.1	.1	.0	.0	.1	45.4	47.4	38.9	43.9	45.4	42.1	43.6
1.4	1.0	.8	.8	.8	.9	.9	45.4	47.4	38.9	43.9	45.4	42.1	43.6
2.3	3.3	2.3	2.3	1.2	2.5	2.3	45.4	47.4	38.9	43.9	45.4	42.1	43.6
33.5	29.1	27.3	27.3	25.1	31.5	28.9	45.4	47.4	38.9	43.9	45.4	42.1	43.6
28.2	27.8	28.2	28.2	26.4	30.6	30.6	45.4	47.4	38.9	43.9	45.4	42.1	43.6
28.2	27.8	28.2	28.2	26.4	30.6	30.6	45.4	47.4	38.9	43.9	45.4	42.1	43.6

TABLE 7. PLANT EQUIPMENT EXPENDITURES - CARRIERS WITH GROSS PLANT VALUED AT MORE THAN \$500 MILLION IN 1971.

NUMBER OF CARRIERS: 5		1973	1974	1975	1976	1977	1978*	1979**	1980**	1981**	1982**
CENTRAL OFFICE EQUIPMENT		MILLIONS OF DOLLARS									
-----		-----									
SWITCHING:	MANUAL	7.9	15.1	11.7	5.1	5.6					
	STEP-BY-STEP	46.5	63.9	71.9	82.4	75.3					
	CROSSBAR	64.0	107.1	111.3	116.3	132.8					
	ELECTRONIC	52.9	90.9	138.4	197.5	205.4					
TRANSMISSION:	RADIO	31.5	31.1	43.1	46.0	41.3					
	OTHER	82.0	136.7	142.4	149.0	147.7					
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SUBTOTAL		284.8	444.8	559.1	596.3	608.1	581.4	648.7	705.9	658.6	698.1
STATION APPARATUS											
-----		-----									
TELETYPEWRTFRS	TELEPHONES	3.4	2.7	15.2	10.4	12.3					
	RADIO TELEPHONES	15.2	29.0	106.1	104.1	108.8					
	DATA	3.6	10.6	17.6	15.2	17.6					
	STATION CONNECTIONS	.7	2.2	12.1	12.3	14.1					
LARGE PBX		96.9	133.5	148.6	167.0	201.0					
		33.1	52.8	54.7	52.6	53.3					
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SUBTOTAL		153.0	230.7	354.4	361.7	407.1	446.5	497.7	514.6	536.6	558.5
OUTSIDE PLANT											
-----		-----									
POLY LINES	CABLE: AERIAL	9.6	12.6	13.3	16.9	28.0					
	UNDERGROUND	55.6	75.4	75.7	96.3	111.9					
	BURIED	48.7	73.8	67.4	85.7	80.1					
	SUBMARINE	76.8	94.3	91.3	102.6	133.6					
AERIAL WIRE		.7	.8	.7	.3	1.0					
	UNDERGROUND CONDUIT	1.7	1.8	1.6	1.9	5.4					
		50.0	64.0	56.0	61.1	63.1					
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SUBTOTAL		243.0	326.7	306.0	364.8	423.2	453.4	528.3	514.8	503.3	539.6
TOTAL											
		680.8	1002.2	1219.5	1322.8	1438.3	1481.1	1674.7	1735.4	1698.4	1796.1
* OUTLOOK											
** FORECAST											

1973-
1977
TOTAL

1978
TOTAL

1979
TOTAL

1980
TOTAL

1981
TOTAL

1982
TOTAL

1978-
1982
TOTAL

PERCENTAGE

CENTRAL OFFICE EQUIPMENT

SWITCHING: MANUAL
STEP-BY-STEP
CROSSBAR
ELECTRONIC
TRANSMISSION: RADIO
OTHER

SUBTOTAL

STATION APPARATUS

TELETYPEWRITERS
TELEPHONES
RADIO TELEPHONES
DATA
STATION CONNECTIONS
LARGE PRX

SUBTOTAL

OUTSIDE PLANT

POLE LINES
CABLE: AERIAL
UNDERGROUND
HURIED
SUBMARINE
AERIAL WIRE
UNDERGROUND CONDUIT

SUBTOTAL

TABLE 8. The Principal Canadian Telecommunication Carriers

Carrier	Service Area	Regulator	Ownership	TCTS Member	Total Telephone (1977)	Plant at Original Cost (1977)	Growth 1973/1977 in Total Assets (Compound)
Alberta Government Telephones	Province of Alberta except City of Edmonton	Public Utility Board	Provincial Crown Corporation	Yes	930,382	(\$000) 1,476,011	(%) 14.66
Bell Canada	Major portions of the provinces of Quebec and Ontario and sections of the Northwest Territories.	Canadian Radio-television and Telecommunications Commission	Investor-owned utility	Yes	8,620,229	7,946,661	7.25
British Columbia Telephone Company	Province of British Columbia	Canadian Radio-television and Telecommunications Commission	Investor-owned utility. Majority of common shares owned by Anglo-Canadian Telephone, a subsidiary of GTE (U.S.).	Yes	1,600,512	1,945,637	12.29
Canadian National Telecommunications	Telephone operations in the Yukon, Northwest Territories and Newfoundland provided through subsidiaries Northwest Telecommunications and Terra Nova Telecommunications. Other services provided through the Canada-wide CN-CP consortium.	Canadian Radio-television and Telecommunications Commission	Federal Crown Corporation	No	61,000(E)	461,327	N/A
Canadian Pacific Telecommunications	Provides telecommunications services other than telephone through the CN-CP consortium.	Canadian Radio-television and Telecommunications Commission	Subsidiary of Canadian Pacific Ltd.	No	N/A	165,895	N/A

N/A Not available
(E) Estimate

TABLE 8 (Continued)

Carrier	Service Area	Regulator	Ownership	TCTS Member	Total Telephone (1977)	Plant at Original Cost (1977)	Growth 1973/1977 in Total Assets (Compound)
Edmonton telephones	City of Edmonton, Alberta	City Council	Municipally-owned utility	No	373,959	(\$000) 283,043	(%) 16.64
The Island Telephone Company Limited	Prince Edward Island	Public Utility Commission of Prince Edward Island	Equity control owned by Maritime Telephone and Telegraph (Halifax)	Yes	55,296	51,497	14.45
Manitoba Telephone System	Province of Manitoba	Public Utility Board	Provincial Crown Corporation	Yes	609,161	542,710	10.90
Maritime Telegraph and Telephone Company Limited	Province of Nova Scotia	Nova Scotia Public Utility Board	Investor-owned utility. About 39% of the common shares are registered under the name of Bell Canada. Under a statute passed by the legislature of Nova Scotia, not more than 1,000 shares may be voted by any one shareholder.	Yes	431,129	455,010	11.91
New Brunswick Telephone Company Limited	Province of New Brunswick	New Brunswick Board of Commissioners of Public Utilities	Investor-owned utility. About 40% of the outstanding common shares is owned by Bell Canada.	Yes	342,920	379,540	11.23

TABLE 8 (Continued)

Carrier	Service Area	Regulator	Ownership	TCTS Member	Total Telephone (1977)	Plant at Original Cost (1977)	Growth 1973/1977 in Total Assets (Compound)
Newfoundland Telephone Company Limited	Eastern and Southern Newfoundland	Board of Commissioners of Public Utilities	Investor-owned utility. Bell Canada owns 66% of the outstanding common shares.	Yes	164,193	(\$000) 212,817	(%) 16.14
Northern Telephone Limited	Northeastern Ontario	Ontario Telephone Commission	Bell Canada owns 99.8% of the outstanding common shares.	No	66,815	39,488	2.13
Okanagan Telephone Company	Okanagan Valley of British Columbia		At the time of the survey, British Columbia Telephone Company (BC Tel) owned 99.2% of the shares of this company. Okanagan Telephone Company is now an operating subsidiary of BC Tel.	No	N/A	N/A	N/A
Ontario Northland Communications	Northern Ontario	Ontario Telephone Commission	Provincial agency	No	2,000(E)	N/A	N/A
Quebec-Telephone	Gaspe Peninsula and Quebec North Shore	Public Service Board of the Province of Quebec	Investor-owned utility. A majority of the outstanding common shares is owned by Anglo-Canadian Telephone, a subsidiary of GTE (U.S.).	No	240,982	295,069	9.68

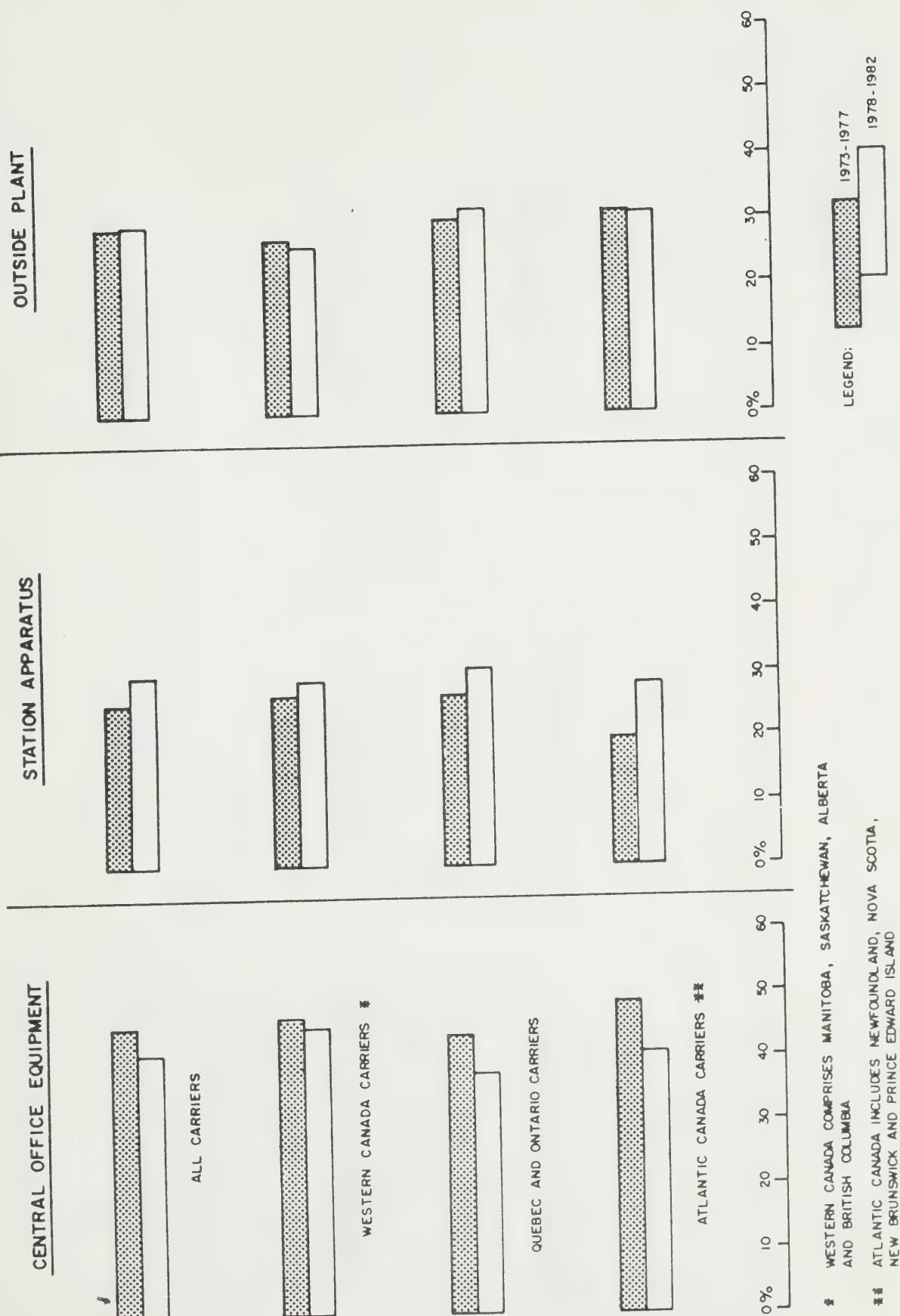
N/A Not available
(E) Estimate

TABLE 8 (Continued)

Carrier	Service Area	Regulator	Ownership	TCTS Member	Total Telephone (1977)	Plant at Original Cost (1977)	Growth 1973/1977 in Total Assets (Compound)
Saskatchewan Telecommunications	Province of Saskatchewan	Provincial legislature	Provincial Crown Corporation	Yes	516,312	(\$000) 557,093	(%) 15.95
Télébec Limitée	Northwestern Quebec	Public Service Board of the Province of Quebec	All outstanding common equity is owned by Bell Canada.	No	130,712	131,420	34.68
Teleglobe Canada	International carrier		Federal Crown Corporation	No	N/A	202,996	10.67
Telesat Canada	Canada via satellite facilities	Canadian Radio-television and Telecommunications Commission	Outstanding common equity is held 50% by the federal government and 50% by the members of TCTS (except Telesat Canada).	Yes	N/A	170,772	2.28

N/A Not available

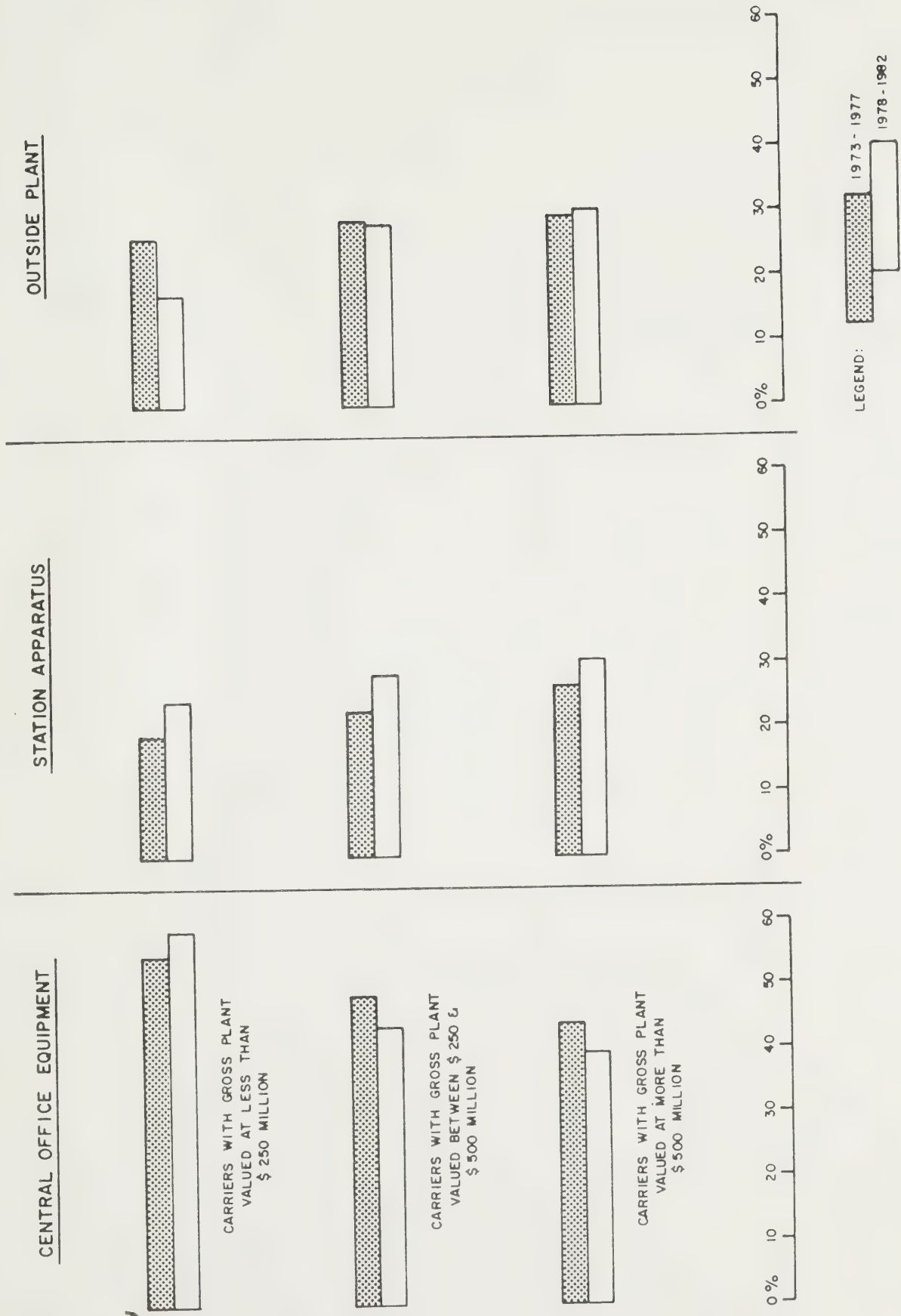
CHART 1: PERCENTAGE DISTRIBUTION OF PLANT EQUIPMENT EXPENDITURES OF THE PRINCIPAL CANADIAN TELECOMMUNICATIONS CARRIERS BY CATEGORY OF EXPENDITURE AND BY REGION BASED ON CARRIERS' HEADQUARTERS



* WESTERN CANADA COMPRISES MANITOBA, SASKATCHEWAN, ALBERTA AND BRITISH COLUMBIA

** ATLANTIC CANADA INCLUDES NEWFOUNDLAND, NOVA SCOTIA, NEW BRUNSWICK AND PRINCE EDWARD ISLAND

CHART 2: PERCENTAGE DISTRIBUTION OF PLANT EQUIPMENT EXPENDITURES OF THE PRINCIPAL CANADIAN TELECOMMUNICATIONS CARRIERS BY MAIN CATEGORY OF EXPENDITURE AND BY VALUE OF GROSS PLANT (1977)



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